SOUNDINGS IN FEET

18649

Formerly C&GS 5532, 1st Ed. Jan. 1963

NOTE B
PRECAUTION AREA

Traffic lanes and the associated precautionary area established at the approaches to San Francisco Bay are completely shown on Chart 18645.

Traffic within the Precautionary Area may consist of vessels making the transition between the Main Ship Channel and one of the established traffic lanes. Mariners are advised to exercise extreme caution when navigating within this area. The normal crossing area of the pilot vessel is indicated "PILOT AREA."

NOTE C
SEPARATION ZONE

Mariners are requested to stay outside the circular separation zone centered on the San Francisco Approach Lighted Horn Buoy SF.

NOTE D

Regulations for Ocean Dumping Sites are contained in 40 CFR, Parts 220-229. Additional information concerning the regulations and requirements for use of the sites may be obtained from Environmental Protection Agency (EPA), San U.S. Coast Pilots (appendix for addresses of EPA offices).

NOTE A

Navigation regulations are published in Chapter 2, U.S. Coast Pilot 7. Additions or revisions to Chapter 2 are published in the Notices to Mariners. Intermediate concerning the regulations may be obtained at the Office of the Commander, 11th Coast Guard District in Long Beach, California, or at the Office of the District Engineer, Corps of Engineers in San Francisco, California.

Refer to charted regulation section numbers.

HORIZONTAL DATUM

The horizontal reference datum of this chart is North American Datum of 1983 (NAD 83) which for charting purposes is considered equivalent to the World Geodetic System 1984 (WGS 84). Geographic positions referred to the North American Datum of 1927 must be corrected an average of 1.2" southward and 3.620" westward to agree with this chart.

WARNING

This product, Raconis, was not rely solely on any single aid to navigation, particularly on floating aids. See U.S. Coast Guard Light List and U.S. Coast Pilot for details.

For Symbols and Abbreviations see Chart No. 1

CAUTION

Only marine radiobeacons have been calibrated for surface use. Limitations on the use of certain other radio signals as aids to marine navigation can be found in the U.S. Coast Guard Light Lists and Defense Mapping Agency Publication 117.

Radio direction-finder bearings to commercial broadcasting stations are unlisted to know and should be used with caution.

Station locations are shown thus:
(Approximate location) (Approximate location)

POLLUTION REPORTS

Report all spills of oil and hazardous substances to the National Response Center via 800-424-8802 (toll free), or to the nearest U.S. Coast Guard facility if telephone communication is impossible (33 CFR 153).

AIDS TO NAVIGATION

Consult U.S. Coast Guard Light List for supplemental information concerning aids to navigation.

NOAA VHF-FM WEATHER BROADCASTS

The National Weather Service station listed below provides continuous marine weather broadcasts. The range of reception is verified at, but for most stations is usually 20 to 40 miles from the antenna site.

Redwood City, CA KHB-49 162.55 MHz

COLREGS International Regulations for Preventing Collisions at Sea, 1972 Demarcation lines are shown thus:

SUPPLEMENTAL INFORMATION

Consult U.S. Coast Pilot 7 for important supplemental information.

AUTHORITIES

Hydrography and topography by the National Ocean Service, Charting and Geodesy Services with additional data from the Corps of Engineers, Geological Survey, U.S. Coast Guard, and Defense Mapping Agency.

NOTE C
SAN FRANCISCO VESSEL TRAFFIC SERVICE

Traffic lanes are intended for use by vessels 300 gross tons and over; arrows indicate the approximate direction of traffic flow within each lane.

PRECAUTIONARY AREA

Vessels transiting the precautionary area east of Alcatraz Island should exercise special caution.

RECREATION AREAS

Recreation areas are intended primarily for use by recreation vessels. Such areas should not be utilized by vessels 300 gross tons or more for through passage or for any other purpose, except in case of emergency or special circumstances.

LIMITED TRAFFIC AREA

Passage by vessels 300 gross tons or more through the Limited Traffic Area south of Yerba Buena Island should be limited to one such vessel at a time to avoid crossing or meeting situations.

VESSEL TRAFFIC SERVICE

The San Francisco Vessel Traffic Service utilizes channel 14 and may be contacted on channels 10 or 16, call sign "San Francisco Vessel Traffic Service." See U.S. Coast Pilot for additional information; specific operating procedures are available from Commander, Eleventh Coast Guard District.

HEIGHTS

Elevations of rocks, bridges, landmarks, and lights are in feet and refer to Mean High Water. Contour and isometric elevation values are in feet and refer to Mean Sea Level.

RACING BUOYS

Racing buoys within the limits of this chart are not shown hereon. Information may be obtained from the U.S. Coast Guard District Offices as racing and other privately maintained buoys are not all listed in the U.S. Coast Guard Light List.

SAN FRANCISCO BAY
TABULATED FROM SURVEYS BY THE CORPS OF ENGINEERS SURVEYS TO FEB. 1980

AREA OF CHANNEL	LEFT OUTER EXPOSED	LEFT INNER EXPOSED	RIGHT INNER EXPOSED	RIGHT OUTER EXPOSED	DATE OF SURVEY	PROJECT DIMENSIONS WIDTH (FEET)	LENGTH (FEET)	DEPTH MLLW (FEET)
MAIN SHIP CHANNEL: SOUTHBOUND	89.1	83.4	93.0	85.1	2-86	2000	3.5	55

NOTE: CONSULT THE CORPS OF ENGINEERS FOR CHANGES SUBSEQUENT TO THE ABOVE INFORMATION

SOUNDINGS IN CHANNELS DEPTHS FROM SURVEYS OF CHANNELS AND ANCHORAGES BY THE CORPS OF ENGINEERS

NAME	Depth controlled by project or maintenance dredging	Shoaling to project depth
	Feet	Feet
Petaluma River	12	1.5
Redwood Creek	30	1.5
Richmond Inner Harbor	35	1.5
Richmond Outer Harbor	35	1.5
Sacramento River Deep Water Ship Channel	35	1.5
San Francisco Bay Entrance Channels	55	1.5
San Francisco Bay Main Ship Channel	55	1.5
San Leandro Marina	12	1.5
San Rafael Creek	12	1.5
Sausalito Channel	12	1.5
Southampton Shoal Channel	35	1.5
Stockton Deep Water Ship Channel	35	1.5
Suisun Bay Channel	35	1.5
Suisun Bay Reserve Fleet Channel	35	1.5
Vallejo Harbor	30	1.5
Vallejo-Mare Island Strait	35	1.5
Walnut Creek	6	1.5

SAN RAFAEL CREEK

The controlling depth was 5 feet for a width of 100 feet from the channel entrance, 37°57'36"N., 122°27'33"W., to the mouth of San Rafael Creek, thence 6 feet for a midwidth of 30 feet to the turning basin, 6 feet in the turning basin centered in 37°58'09"N., 122°30'56"W., thence 6 feet for a width of 60 feet to the Grand Ave. Bridge.
Oct.-Nov. 1987-June 1988

RICHMOND - SAN RAFAEL BRIDGE

Fixed white lights are mounted vertically over fixed green lights at the center of the main navigation channel span.
Clearances of the main navigation channel spans:

	WEST CHAN	EAST CHAN
HOR. CL	1060 FT	800 FT
VERT. CL	185 FT.	177 FT.

LOGARITHMIC SPEED SCALE

To find SPEED, place one point of dividers on distance run (in any unit) & the other on minutes run. Without changing divider spread, place right point on 60 and left point will then indicate speed in units per hour. Example: with 4.0 nautical miles run in 13 minutes, the speed is 18.0 knots

CONTINUED ON CHART 18649

CONTINUED ON CHART 18645

53rd Ed., May 6/89 ■
18649

CAUTION
This chart has been corrected from the Notice to Mariners published weekly by the Defense Mapping Agency Hydrographic/Topographic Center and the Local Notice to Mariners issued periodically by each U.S. Coast Guard district to the date shown in the lower left hand corner.

This nautical chart has been designed to promote safe navigation. The National Ocean Service encourages users to submit corrections, additions, and comments for improving this chart to the Director, Charting and Geodetic Services (N/CG33), National Ocean Service, NOAA, Rockville, Maryland 20852.

Nautical Miles
Yards

Published at Washington, D.C.
U.S. DEPARTMENT OF COMMERCE
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION
NATIONAL OCEAN SERVICE

SOUNDINGS

C 55.418/7:18649

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Formerly C&GS 5532, 1st Ed., Jan. 1953

Nautical Chart Catalog No. 2, Panel N

UNITED STATES – WEST COAST

CALIFORNIA

SAN FRANCISCO ENTRANCE

Mercator Projection
Scale 1:40,000 at Lat. 37°51'
North American Datum of 1983
(World Geodetic System 1984)

SOUNDINGS IN FEET
AT MEAN LOWER LOW WATER

RICHMOND HARBOR AND SOUTHAMPTON SHOAL CHANNEL DEPTHS
TABULATED FROM SURVEYS BY THE CORPS OF ENGINEERS-SURVEYS TO OCT. 1986

NAME OF CHANNEL	CONTROLLING DEPTHS FROM SOUNDING IN FEET AT MEAN LOWER LOW WATER (MLLW)					PROJECT DIMENSIONS		
	LEFT OUTSIDE QUARTER	LEFT INSIDE QUARTER	RIGHT INSIDE QUARTER	RIGHT OUTSIDE QUARTER	DATE OF SURVEY	WIDTH (FEET)	LENGTH (NAUT. MILES)	DEPTH (FEET)
SOUTHAMPTON SHOAL CHANNEL	42.3	45.9	45.0	45.4	3-88	800	1.1	40
RICHMOND HARBOR								
ENTRANCE CHANNEL	31.8	31.7	32.9	33.2	10-85	400-550	1.0	30
TURNING BASIN AT								
PT. RICHMOND	31.1	31.4	31.6	31.0	10-85	350-1100	0.4	30
POINT POTRERO REACH	31.5	32.4	32.2	31.2	10-86	500-650	1.0	30
POINT POTRERO TURN	32.1	34.5	33.1	28.5	1-10-86	400-1000	0.5	30
HARBOR CHANNEL	40.1	40.0	40.1	40.7	10-85	400-700	0.5	40
SANTA FE CHANNEL	31.7	32.5	31.5	31.5	7-86	200	0.5	30
TURNING BASIN	30.3	30.6	30.1	24.6	3-88	200-500	0.19	30

A. THE CHANNEL HAS SHOALED ALONG THE EDGE, A DEPTH OF 31.0 FEET WAS AVAILABLE IN THE INSIDE HALF OF THE QUARTER.
NOTE - CONSULT THE CORPS OF ENGINEERS FOR CHANGES SUBSEQUENT TO THE ABOVE INFORMATION

PRODUCED BY COMPUTER GRAPHICS METHODS

CAUTION
Improved channels shown by broken lines are subject to shoaling, particularly at the edges.

CAUTION
Temporary changes or defects in aids to navigation are not indicated on this chart. See Notice to Mariners.

PLANE COORDINATE GRID
(based on NAD 1927)
California State Grid, Zone 3, is indicated by dotted ticks at 10,000 foot intervals.

STORM WARNINGS
The National Weather Service displays storm warnings at the following approximate locations:
Berkeley Yacht Harbor (37°52.0'-122°19.0')

RADAR REFLECTORS
Radar reflectors have been placed on many floating aids to navigation. Individual radar reflector identification on these aids has been omitted from this chart.

SAN FRANCISCO - OAKLAND BAY BRIDGE
(Privately maintained aids)
The piers are lettered on the chart for reference.
Lights:
Piers A, B, E, G, and H: An AERO, flashing red every 10 seconds, on top of tower; it head red light each side of the bridge at the foot of the tower.
Piers I, J, and K: A fixed red light each side of the bridge at the foot of the tower.
Pier C: A fixed red light on each corner of the pier and red sea lights along the NE, SE, and SW sides of the pier.
Spans DE, EF, FG, and GH: A fixed green light with 3 white lights in vertical line above center of channel through span, on each side of bridge; red sea lights on channelward side of piers.
Spans HJ, JK, KL, and LM: A fixed green light on each side of the bridge marking the NE limit of the navigable channel.
Spans BC, CD, KL, LI, and JK: Fixed green lights on each side of the bridge marking the NE limit of the navigable channel.
Spans LI, JK, KL, LM, and MN: A light, occulting red every 5 seconds, on top and at the center of the span.
Fog signals:
Bells on the east and west sides of pier C and on piers I, J, and K.
Horns on piers A, B, D, E, G, and H.

APPROXIMATE MID SPAN VERTICAL CLEARANCES
A-B 304 FT. C-D 220 FT
B-C 330 FT. D-E 204 FT

CAUTION—Mid span clearances under the long spans of the San Francisco-Oakland Bay Bridge are approximate and at a temperature of 50°F. These clearances may be reduced several feet due to extreme traffic conditions and prolonged period of abnormally high temperature

Vertical clearances at the piers are:
PIER A - 174 FT. PIER E - 175 FT. PIER J - 170 FT.
PIER B - 212 FT. PIER G - 186 FT. PIER K - 165 FT.
PIER C - 220 FT. PIER H - 184 FT. PIER L - 155 FT.
PIER D - 216 FT. PIER I - 176 FT. PIER M - 141 FT.

TOWER (CAMPANILE)

OAKLAND OUTER AND INNER HARBORS
TABULATED FROM SURVEYS BY THE CORPS OF ENGINEERS-SURVEYS TO SEPT. 1988

NAME OF CHANNEL	CONTROLLING DEPTHS FROM SOUNDING IN FEET AT MEAN LOWER LOW WATER (MLLW)					PROJECT DIMENSIONS		
	LEFT OUTSIDE QUARTER	LEFT INSIDE QUARTER	RIGHT INSIDE QUARTER	RIGHT OUTSIDE QUARTER	DATE OF SURVEY	WIDTH (FEET)	LENGTH (NAUT. MILES)	DEPTH (FEET)
BAY CHANNEL	34.1	36.3	41.0	37.5	3-88	800	0.65	35
OUTER HARBOR ENTRANCE CHANNEL	4.80.7	37.2	38.9	37.0	3-88	600-800	1.97	35
OUTER HARBOR	33.4	33.9	35.0	31.8(L)	3-88	800-1300	1.40	35
INNER HARBOR								
ENTRANCE CHANNEL	34.1	35.0	35.3	34.1	5-7-3-88	600-900	1.00	35
INNER HARBOR REACH	226.0	38	36.1	226.0	7-86	500-800	2.07	35
BRIDGE TO BRIDGE								
ENTRANCE CHANNEL	39.6	34.9	31.7	511.4	7-86	600	1.00	35
BROOKLYN BASIN SOUTH CHANNEL	727.4	30.1	23.1	513.1	7-86	600-200	0.80	35
PIERS 61 BRIDGE REACH	10.0	30.0	22.5	11.0	1-86,3-88	500-275	0.42	35

A. THE CHANNEL HAS SHOALED ALONG THE EDGE, A DEPTH OF 31.2 FEET WAS AVAILABLE IN THE INSIDE HALF OF THE QUARTER.
B. THE HARBOR HAS SHOALED ALONG THE EDGE, A DEPTH OF 36.1 FEET WAS AVAILABLE IN THE INSIDE HALF OF THE QUARTER.
C. THE CHANNEL HAS SHOALED ALONG THE EDGE, A DEPTH OF 34.9 FEET WAS AVAILABLE IN THE INSIDE HALF OF THE QUARTER.
D. THE CHANNEL HAS SHOALED ALONG THE EDGE, A DEPTH OF 35.0 FEET WAS AVAILABLE IN THE INSIDE HALF OF THE QUARTER.
E. THE CHANNEL HAS SHOALED ALONG THE EDGE, A DEPTH OF 30.6 FEET WAS AVAILABLE IN THE INSIDE HALF OF THE QUARTER.
F. THE CHANNEL HAS SHOALED ALONG THE EDGE, A DEPTH OF 31.4 FEET WAS AVAILABLE IN THE INSIDE HALF OF THE QUARTER.
G. THE CHANNEL HAS SHOALED ALONG THE EDGE, A DEPTH OF 30.1 FEET WAS AVAILABLE IN THE INSIDE HALF OF THE QUARTER.
NOTE - CONSULT THE CORPS OF ENGINEERS FOR CHANGES SUBSEQUENT TO THE ABOVE INFORMATION

PRODUCED BY COMPUTER GRAPHICS METHODS

CAUTION
CHANGES in BUOYAGE
Mariners are advised that authorized aids to navigation are being changed to conform to maritime attendants of the International Association of Lighthouse Authorities Maritime Buoyage System, Region B. Significant changes are: black port hand buoys to green, black and white vertically or pied buoys to red and white vertically striped buoys; and lateral lights from white to red or green us appropriate. Changes to aids to navigation will be announced in the Defense Mapping Agency Hydrographic/Topographic Center weekly Notice to Mariners and the U.S. Coast Guard Local Notice to Mariners.

OAKLAND INNER HARBOR BRIDGES
FRUITVALE AVE. SW LIFT BRIDGE — HORIZ CL 90 FT; VERT CL 15 FT, DOWN
FRUITVALE AVE. SWINGLE BRIDGE — HORIZ CL 100 FT; VERT CL 135 FT, UP
PARK ST. BASCULE SPAN-T — HORIZ CL 165 FT; VERT CL 11 FT
BROOKLYN BASIN, FIXED BRIDGE — HORIZ CL 21 FT; VERT CL 11 FT
HIGH ST. BASCULE BRIDGE — HORIZ CL 90 FT; VERT CL 15 FT; (100 FT. CENTER WIDTH)

NOTE E
Anchoring or dragging anchor within the colored limits of the Bay Area Rapid Transit (BART) tunnel crossing is prohibited. (33 CFR 110.224, p. 2)

SOUNDINGS IN FEET

(Entrance to San Francisco Bay)
SOUNDINGS IN FEET - SCALE 1:40,000

18649

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